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Project Topic: Web Conferencing:
Could it be used to benefit the South Carolina Department
of Natural Resources?

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STATE DOCUMENTS

Introduction

Facing the twenty-first century, South Carolina's natural resources are healthy, abundant, and support multiple uses. However, the job of maintaining our quality of life requires a reasonable balance between conserving our resources, sustaining traditional uses, increasing support for other user demands and accommodating economic development. This balancing act is becoming increasingly difficult for the agency with the reduction of funds and staff.

The field of Web Conferencing software is growing at a rapid pace. In the summer of 1994 there was exactly two products in this category of technology, both of them rather primitive freeware packages. Today there are well over 60 commercial and freeware products and services, many of them quite sophisticated, that support conferencing on the Web in one form or another.

Strategy 2 Action 3 of the South Carolina Department of Natural Resources Strategic plan states, "the agency should maintain, develop and implement new technologies to enhance natural resources".¹ Also strategy 5 of the strategic plan states the agency should "continuously review the infrastructure, human resources and funding sources to maximize efficiency and effectiveness of operation".²

This document provides details about common applications of Web Conferencing Services. The goal of this document is to provide an overview of the applications related to common uses of Web Conferencing Service so that readers can become more aware and familiar with the reasons and benefits of the use of the services.

1 South Carolina Department Natural Resources. SCDNR Strategic Plan, Page 4

2 Ibid Page 5

With so many available products and services, the choice can seem overwhelming, but with a methodical approach, we'll probably find that we can quickly cut the list down to just a few candidates for our purposes.

This document is not inclusive of all of the applications and/or benefits that our agency may realize when personnel use the services. This document does provide information that may be used to better understand how our agency can utilize many different applications when Web Conferencing equipment and service are installed.

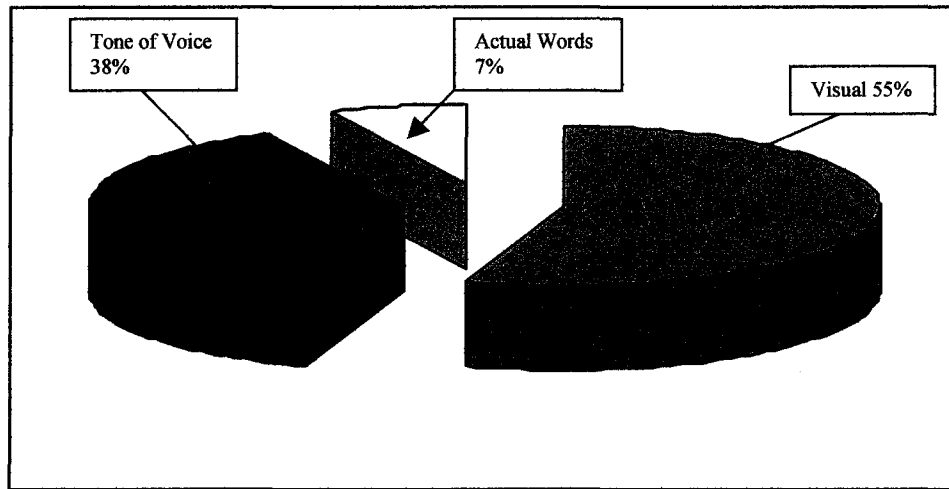
What is Web Conferencing?

Web Conferencing is a bit like using the phone.... except that you see as well as hear the person you are calling. You see their expressions, their body language, and their reactions to your ideas. You can also work together on the same spreadsheet, or any other PC document. It's like being in the same room as the person you are calling, working with them face-to-face. Web Conferencing helps people to work more effectively because visual communication is perhaps the most natural form of communication. People understand faster and can remember more of what is shown rather than just told, especially when the subject is itself a visual idea.

Web Conferencing Services would allow the DNR to bring distant locations together so that everyone can communicate visually and verbally. The addition of visual aid to a conference allows for more effective communication by adding the ability for the conferees to read facial expressions and body language as well as share documents electronically. This cannot be done on an audio only conference call.

Why is it important to be able to see someone as well as hear him or her?

Communication is made up of three main components



What Influences The Listener During Verbal Communication

- ✓ ***Words (7%)***
- ✓ ***Tones (38%)***
- ✓ ***Visual Clues (55%)***

Of these three components, the actual words spoken only convey 7% of the actual meaning. The true meaning of the words is actually conveyed through the tone and inflection of the speaker's voice and the visual clues they present, such as posture, facial expression and body language. Without Web Conferencing, employees must travel across town, across state or across country to meet face-to-face in order to get the full benefit of verbal communication.

Audio only conferencing helps, but attendees lose 55% of the overall meaning of their conversation. Web Conferencing brings the effectiveness of the face-to-face meeting to our department, without the need to leave the office. This provides our agency with these benefits:

- **Reduced travel**
- **Improved decision making**
- **Reduced administrative costs associated with travel**
- **Increased productivity**
- **Enhanced employee retention**

Why is Web Conferencing so useful?

Web Conferencing enables people to interact at a distance... whether that distance is 2 offices down the hall or 2 hours by car. It allows people to talk through ideas and exchange information as if they were in the same room. This means people can spend time on their work without having to wait for e-mails, faxes or phone calls. In short, Web Conferencing brings people together.

Web Conferencing systems are designed to allow several groups of people at various locations to join a meeting or just a couple of people to discuss projects from their desks. In either case, they see full-motion pictures, hear clearly what is being said, and have the feeling of being together. In this way, Web Conferencing creates, an environment where decisions are made faster, and where ideas, knowledge, and inspiration can flow from colleague to colleague. The result is stronger teamwork and a more focused purpose.... and all without the need to travel. Web Conferencing makes it easy to call a colleague who has all the relevant knowledge to deal with a particular question instantly. Decisions are made faster. With Web Conferencing personnel can be in several different locations at once.... we've all had this dilemma. Web Conferencing Service can help our agency make more out of our available

resources by improving communication between locations, decreasing travel and travel related expenses, improving decision making, increasing productivity and enhancing employee retention.

There are three types of benefits resulting from Web Conferencing. "Hard" benefits are those that can be measured. While "Soft" and "Strategic" benefits are difficult to measure, they should all be included in a cost/benefit analysis for our agency for considering a Web Conferencing investment.

Hard Benefits Reduced Cost *fewer travel miles and accommodation cost*
 More Productivity *less time is spent on travel and more on productive work*
 Best Use of Resources *key people and key information becomes more accessible*

Soft Benefits Improved Communication *people meet more often and share knowledge more effectively*
 Faster Decision Making *easier access to key personnel*
 Environmentally Friendly *no harmful emissions from cars*

Strategic Benefits Optimized Decision Making *decisions are not only made faster, but with more consensus and agreement from everyone involved*
 Faster Crisis Management *executives can meet at short notice wherever they are located in the state*
 Increased Customer Responsiveness *with an increased availability of people, customer requirements and needs can be discussed and answered more efficiently*

Who Should Use Web Conferencing?

Almost any division in which staffs need to communicate (either internally among colleagues or externally with other divisions personnel, state or federal agencies) will find this form of communication beneficial and useful. It will improve communications, increase productivity and reduce the cost of doing business.

Traditionally, Web Conferencing was confined to larger corporations. But in the past 10 years, dramatic price reductions and the increasing availability of Internet connections have

made Web Conferencing equipment a practical and affordable way to communicate for state agencies of all sizes.

There are three main ways we could use Web Conferencing:

1. Point to point
2. Point to multipoint (broadcast)
3. Multipoint to multipoint

Point to Point

Point to point Web Conferencing is the direct connection of two Web Conferencing systems via a network such as ISDN or an intra/internet.

Point to Multipoint

Point to multipoint Web Conferencing is sometimes called "broadcast mode". This set up allows a priority site to broadcast to other sites, which have the opportunity to interact and ask questions. For those systems with a built-in Multipoint conference unit, it provides immediate communication, without the need to reserve an external multipoint bridge. The meeting can last as long as needed and is not restricted to a specific time slot. Point to multipoint Web Conferencing is ideal for agency heads to address a number of employees.

Multipoint to Multipoint

For multipoint-to-multipoint Web Conferencing, users can have two options:

External MCU

With an external MCU (Multipoint Conferencing Unit) we would need to reserve and possibly even pay for an additional external MCU from a local telephone provider.

Internal MCU

The other option would be to use an MCU which some modem systems have already built in, which enables people from up to 4 to 6 sites to simultaneously conference, simply by dialing the ISDN (Integrated Service Digital Network) numbers.

A built-in MCU has the advantage that we do not need to estimate the length of meeting or reserve and pay for the time needed on an external bridge connection. (This needs to be discussed with our data processing section)

How Would It Benefit The Way We Do Business?

Web Conferencing would inject new flexibility into our agency. Personnel could get together at any time to discuss and review a project's status or to solve problems that may arise. They could instantly share documents, diagrams, and data files.... working on them live, interactively. Project times could be slashed and products brought to acquisition quicker. Customer service could be made more responsive. New, more efficient work practices would evolve, practices that build teamwork and make the most of each person's individual talents.

When Web Conferencing is used to enhance communication with employees, even more new practices emerge. Closer and more regular contact helps create loyalty and understanding. Everyone becomes more focused on the unified common goal ... enhancing and protecting South Carolina's natural resources.

The need to react quickly to a given situation, whether it's a human resources policy, financial, or an emergency event, Web Conferencing brings the key players together so that these decisions can be made quickly and effectively.

Even during day-to-day operation the ability to get key decision makers together helps the DNR run effectively and reduce the time for decisions to be made and enacted. Web Conferencing could be used to talk with peers in other agencies and peers in other Department of Natural Resources in other states or enhance communications with employees during these uncertain times.

Where Can Web Conferencing Be Used?

Web Conferencing equipment can virtually be used in any remote location, room and /or on any desktop. No special lighting or electrical connections are needed. Apart from the relevant Web Conferencing equipment, all that's needed is an ISDN (Integrated Service Digital Network} or LAN (Local Area Network) connection, and that is available from our local telephone company or agency Data Processing section.

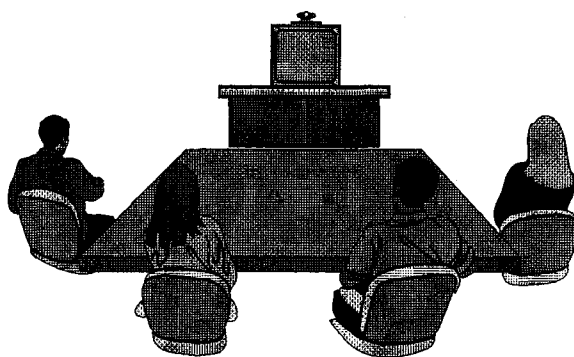
There are however, some tips to optimize the quality of Web Conferencing environment.

- ❑ Always avoid mixing daylight and artificial light.
- ❑ Avoid windows in view of the camera. Background movement will distract viewers.

Most modern Web Conferencing systems are plug & play, which makes it easy for the novices to operate.

What Does A Web Conferencing System Consist Of ?

A Web Conferencing system consists of a camera, a monitor, a codec (video coder decoder), and a microphone at each location. An ISDN (Integrated Service Digital Network} or LAN (Local Area Network that connects computers usually within a small area like the Dennis Building) line provides the sound and pictures between each location. Telephone line or the use of Educational Television 's satellite technology could be use to link all locations together. I believe we have all the connections in place through the DNR Data procession section. The system only needs to be tweaked to accommodate Web Conferencing.



Why Web Conferencing Now?

Until recently, high quality, affordable Web Conferencing was not possible, since ordinary telephone lines could not carry the volume of data associated with video. However, today's data compression techniques and the increase availability of ISDN lines (Integrated Services Digital Network) and (LAN Based Networks) mean that the transmission speeds required by video are easily handled. There is also a much wider range of Web Conferencing products available today, so state agencies of all sizes can choose a mix of products to fulfill their communication needs precisely.

Human Resources continue to make an effort to train DNR Employee statewide. The cost to train employees, both initial training and recurrent training, can be expensive due to the direct training expense, such as travel time; travel costs and lost productivity while the employees are in class.

Training employees, both initial training and recurrent training, is expensive, no doubt about it, even when just considering the direct cost to provide the training. If a Department such as DNR rely on outside trainers to teach classes, that one trainer must either travel to all of the agency's locations, which drives up the cost of the course, or the employees must travel to the trainer. Web Conferencing allows the agency to bring together employees from multiple locations around the state into a single class or session, thus vastly increasing the number of employees they can reach with each class session. This reduces the cost to train employees by:

- 1) Reducing the cost of the trainer (they teach more people in a single session- thus the total session are decreased)
- 2) Reducing the travel expenses that would have been incurred to get employees to the training site.
- 3) Reducing lost productivity because employees remain in their offices (and thus can go right back to work after the training session – and have access to the resources of their home office to react to day-to-day operations while on breaks).
- 4) The class could be taped (without the use of extra personnel) for future viewing by other employees that could not attend.

If our agency operates its own training center, we could realize an increase in its effectiveness by deploying Web Conferencing. Using the same principles as above, they can decrease instructor costs; decrease travel costs and decrease lost productivity through the use

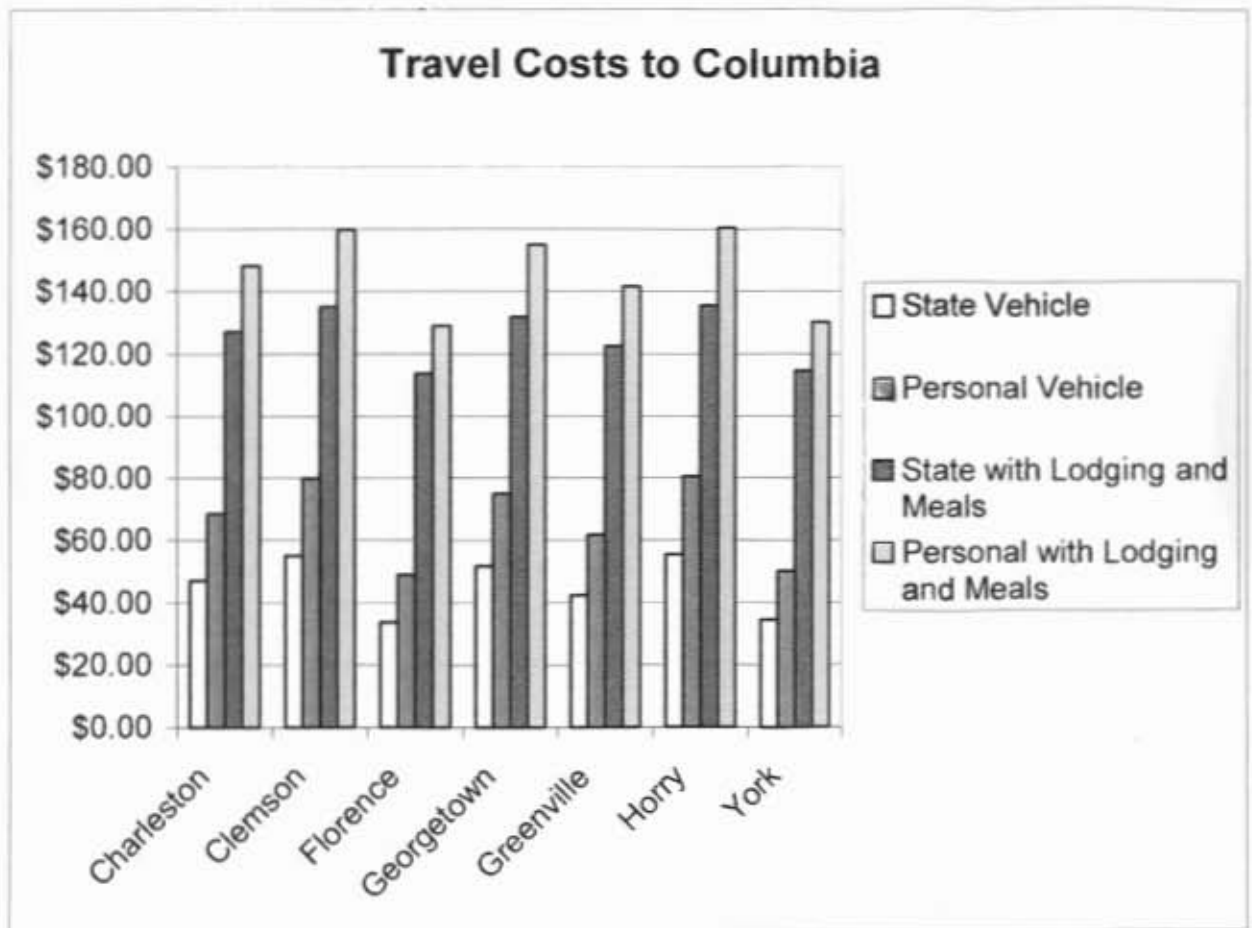
of Web Conferencing for training. Web Conferencing also enhances the agency's ability to get new information to their employees more quickly, allowing them to put that new information to use and to be more productive. Keeping employees happy in their current jobs, and offering a working environment that is comfortable, will enhance our agency's ability to retain employees. Communication with employees is the most effective way of identifying and discussing "dissatisfaction" before they lead to the loss of the employee. The cost of losing valuable employees impacts our department from two directions:

- ❑ **Lost productivity from the time the employee leaves until their replacement becomes as effective**
- ❑ **The cost of training the new employee**

All divisions could utilize the equipment daily by staying in contact with personnel around the state. The need to react quickly to a given situation, whether it's a political, financial or an emergency event such as a hurricane, Web Conferencing brings the key personnel together so that these decisions will be made quickly and effectively.

Productivity is lost when employees travel because they are away from the office and away from the tools necessary to conduct business. This is especially true at the executive level, where lost productivity is very expensive. Providing a way for executive level meetings to occur, while keeping the executives close to their offices, will greatly reduce the cost of lost productivity. In addition to losing effective working time on the road, the traveler also loses some effectiveness to react to situations and to make timely decisions. Law Enforcement Offices, Game & Fisheries Biologist and Land/Water personnel, could meet statewide without leaving their respective counties. Think of the gasoline saved and environmental impact this would make.

Let's take a look at the chart below: A DNR employee in Horry county is asked to attend a meeting in the Columbia office. With a state Vehicle the trip is 264 miles round trip at .21 cents a mile which equals \$55.44. Add overnight (lodging \$55.00) expense with meals (\$25.00) this equals \$80.00. Add all the expenditures together and the total is \$135.44 for just an overnight trip to attend a meeting in Columbia.



*Average Travel cost from locations around South Carolina
to the DNR's Columbia office*

What does a Web Conferencing system cost?

Group system for one location cost about the same as a photocopier. With all modern office equipment, the more we spend the more convenience and performance we will get. The main option here is to consider a system that can be upgraded within the future. For example, we could opt for enhanced audio features using advanced microphones that zero-in on the person who is speaking. Other options include larger monitors screens, integration with VCRs to play tapes or record meetings, and specialized cameras that can be used to show documents, (copy stand) photographs, or diagrams.

The main operating cost is that of using an ISDN Line (Integrated Services Digital Network). The basic rate for an ISDN line is about the same as that for an ordinary phone. Hence, a call from Charleston to Columbia, for example, would cost less than \$.90 a minute. That means a 1 hour long meeting would cost about \$54. *(This is an estimated cost)*

This Form of technology is still a young field, and prices are all over the map: they range from free to several thousand dollars. We won't assume that a higher priced product is better. To a certain extent, you get what you pay for, but a few of the freeware products, I'm told are actually stronger than some commercial products. Price is still a contributing factor. The most expensive product is not necessarily the one that will best suit our specific needs.

I have taken the liberty to contact a state contract vender (**Polycom**) for equipment and a price list for review. Three locations were discussed, with Columbia being the main focal point. Without knowing what equipment and wiring are in place in these locations, prices were estimated at the highest rate. I feel sure that some of this cost can be cut or even eliminated with further review and

discussion with Data Processing Personnel. Keep in mind that this is **not** the final proposal. This is only an overview of one system. Also keep in mind this is the best they offer. (*see attachments*)

Conclusion

Web Conferencing was once an expensive technology used by large corporations. It is now a practical and affordable business communications tool that reduces costs and improves productivity.

Many analysts agree that Web Conferencing is one of the few areas left where a company or agency can forge a new competitive advantage, an advantage that is especially effective in today's faster-changing world. Moreover, thanks to today's wide choices of systems, their affordable prices, and simplicity of use, Web Conferencing is a realistic option for state agencies of any shape and size. It enhances internal decision-making and improves productivity in the work place. Anyone with a web browser, Internet connection, and a credit card can start holding Web Conferences. I feel confident that this form of technology could be of importance to our agency.

The agencies that have already taken the Web Conferencing advantage are quickly learning how to exploit it. For the rest, the question is no longer 'should we opt for Web Conferencing', but 'when? Those that do so in the future will be well positioned to develop their organization to reap the full benefits of present and future.

Bibliography

South Carolina Department of Natural Resources, (2003). SCDNR Strategic Plan.

Vijayan, J. (August 30,2002). Survey: web conferencing use grew sharply last year.
COMPUTERWORLD

Research,W. (March 2002). The integrated collaboration environment. FIRST VIRTUAL
COMMUNICATION

Nilssen,A. & Beattie,M. (2002). Web conferencing, instant messaging & streaming media.
WAINHOUSE RESEARCH

Lindstrom, P. (April 2003). Best practices in web conferencing security. SPIRE SECURITY

Anderson, W. (2003). Web collaboration. ABA TECHSHOW

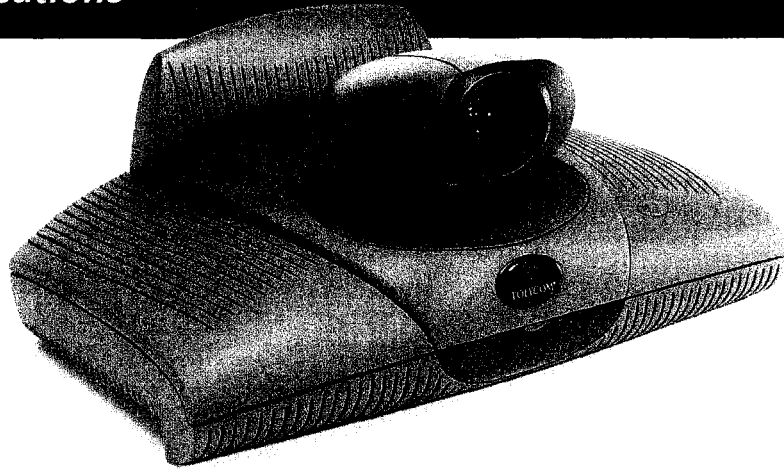
Wooley, D. (June 1998). The future of web conferencing. STYLUS PUBLISHING

Ridgway, N. (April 28,2003). A safer place to meet. FORBES

Charny, B. (March 2003). Price 'war'. CANBERRA TIMES

Polycom® ViewStation® EX

Performance video conferencing for demanding applications



Highlights

The industry leader – The most popular and widely deployed group video conferencing platform in the world

Superior video quality – Polycom Video Error Concealment™ (PVEC) counters real-world network packet loss

Clear 360-degree, full-duplex digital audio – With noise suppression, echo cancellation and automatic gain control

Maximum call flexibility – Support multipoint conferences with up to 14 video and audio sites through the embedded MCUs when cascading (10 sites on any mix of IP or ISDN, plus 4 regular telephone connections)

See presenter and live, high-resolution multimedia presentation – People+Content™ displays video of the presenter along with live, high-resolution XGA PC graphics and sound between ViewStation EX, ViewStation FX, ViewStation 4000, iPower™ and MGC bridges

Built-in automatic MultiPoint Plus presentation modes – Display modes automatically switch between ViewStation EX presenter and continuous presence – like a live TV news show

Security you can trust – Independently verified and tested for secure use in corporate and classified environments

ViewStation EX sets a new standard in price and performance for the mid-range. ViewStation EX delivers quality video and audio for conference rooms.

Polycom video conferencing and collaboration systems provide advanced technology specifically designed for video conferencing, including superior audio pickup with 360-degree microphone that enables meeting participants to be heard from anywhere in the room. Polycom's user interface is easy to use with on-screen graphics, and easy to navigate with color-coded remote controls. Going beyond face-to-face meetings, laptops can be quickly connected to Polycom video systems with dedicated devices that make sharing content as easy as pushing a button. These high-quality Polycom systems are all part of The Polycom Office.

High-quality video communications for The Polycom Office™

With integrated video, voice, data, and Web capabilities, The Polycom Office is the only solution that offers you an easy way to connect, conference, and collaborate any way you want. It's our commitment to making distance communications as natural and interactive as being there. Work faster, smarter, and better with the ViewStation EX and The Polycom Office.



Video

Connect. Any Way You Want.

ViewStation EX Specifications

Polycom video conferencing and collaboration systems support Polycom network infrastructure and management systems. With the Polycom MGC, Polycom video systems can participate in large multipoint conferences. Polycom PathNavigator™, among many other features, enables easy dialing from Polycom video systems with OneDial™. And video systems can be centrally managed and controlled with Polycom Global Management System™, and access the Global Address Book for easy access to directory services. Polycom video conferencing and collaboration deliver high-quality video and integrated solutions for The Polycom Office.

Technical specifications

- ITU H.323 and H.320 compliant
- Cisco AAVID certified
- People+Content™ allows dual display of video and content
- Conference on Demand™ initiates unscheduled MGC calls from the endpoint
- Call Detail Records enables billing of calls and tracking with Global Management System
- Polycom Video Error Concealment™ (PVEC) for improved video quality on networks with packet loss
- Global Management System™ for centralized management
- Global Directory Server for live global address book
- PathNavigator™ for easier call placement and network cost optimization
- MGC Click and View™ integration for individual screen layouts

User interface

- User-friendly graphical user interface that is easy to read from a distance
- Handheld, ergonomic remote control
- Custom logo on home screen with speed dial numbers
- Web Interface (Internet Explorer 5.5 & 6.0; Netscape Navigator 6.0 & 6.1)

Bandwidth

- Max data rate H.320: up to 512 Kbps
- Max data rate H.323: up to 768 Kbps

Video standards

- H.261, Annex D
- H.263+ Annexes: L, F, T, I, J, U, u
- H.263++ Annex D
- ITU 60 fields per second letterbox

Video features

- 2 monitor support to simultaneously display full screen video from up to 4 endpoints, plus PC content on a separate XGA projector
- Automatic VCR recording of all endpoints based on the person who is talking
- Automatic Picture-in-Picture (PIP)

Video inputs (2 inputs)

- Integrated main camera
- 1 x MiniDin S-Video (document camera)
- 1 x RCA/Phono, composite (VCR)

Video outputs (5 Outputs)

- 2 x MiniDin S-Video (Support for 4 independent monitors)
- 1 x RCA/Phono, composite (monitor)
- 1 x RCA/Phono, composite (VCR)
- 1 x XGA (projector)

Video formats

- NTSC, PAL, XGA, SVGA, VGA

Integrated main camera

- Ultra-quiet, ultra-fast Pan, Tilt, Zoom (PTZ)
- 65° field of view
- Tilt range: +/- 25° (up/down)
- Pan range: +/- 100° (left/right)
- Total field of view: 265°
- 12x zoom; f-4.2 to 42mm
- F=1.85 to 2.9 mm
- Auto focus
- Automatic white balance
- 20 camera presets (10 local and 10 far end)
- Voice tracking to presets
- Far end camera control

People+Content™

- Dual images (transmits people and high resolution content simultaneously)
- Dual audio (transmits audio from room microphones and PC simultaneously)
- Available on IP and ISDN
- Works from any endpoint with embedded MCU (not just host site)

Live people video resolution

- 4CIF (704 x 576)
- CIF (352 x 288)
- QCIF (176 x 144)

Live PC content resolution

- XGA (1024 x 768)
- SVGA (800 x 600)
- VGA (640 x 480)
- 4CIF, NTSC, CIF for S-video or composite inputs

Still image transfer

- CIF, 4CIF (H.261 Annex D), 16 CIF high resolution (H.263)

Optional VisualConcert FX

- Tabletop device (for audio and video input from PC or Macintosh)
- Input: up to 1280x1024, 60 Hz
- Output: up to 1024x768, 60 Hz
- 1 x audio input for PC
- 1 x video input for PC up to 1280x1024, 60 Hz
- 1 x video out for projector up to 1024x768, 60 Hz
- 3 x 10/100 Ethernet hub

Other content input options

- PC Presents™ for Microsoft® PowerPoint® presentations from your PC
- Polycom SNAP for high resolution graphics capture of PC content

Audio standards

- 7 kHz G.722, G.722.1
- 3.4 kHz with G.711, G.728

Audio features

- Instant adaptation echo cancellation
- Automatic Gain Control (AGC) – voice activated
- Automatic Noise Suppression (ANS)
- Built-in tonal speaker test
- Audio level meter
- Audio mixer
- Telephone POTS support
- Ability to talk over VCR audio

Digital tabletop microphone

- 360° voice pick-up, unidirectional performance
- Automatic room noise reduction
- Gated mixer built into microphone
- 3 hyper-cardioid digital microphones in each microphone pod
- Mute button on each microphone
- Includes 1 microphone pod
- Can be mounted to ceiling or walls

Audio inputs (4 inputs)

- RJ-9 to microphone (daisy chain up to 2 microphone pods)
- 2 x RCA / phono line level (VCR)
- 1 x RCA / phono line level (mixer/auxiliary)

Audio outputs (4 outputs)

- 2 x RCA / phono line level (main audio)
- 2 x RCA / phono line level (VCR)

Frame rates (point-to-point)

- 15 fps – 30 fps
- Intelligently selects frame rate for best video performance
- TV-quality letterbox 60/50 fields video for NTSC/PAL at 512 kbps and above

Optional embedded MultiPoint Plus

- Supports mixed combinations of IP, ISDN, and analog telephone calls
- Supports IP telephones
- Supports normal analog telephones
- Automatic IP and ISDN downspeeding
- Dial-in and dial-out during MultiPoint Plus calls
- Continuous presence or voice switched
- Automatic MultiPoint Plus Presentation Modes to automatically switch between presenter and continuous presence modes
- Chair control from endpoints or host system on IP
- Chair control from endpoints or host system on ISDN
- Embedded MultiPoint Plus for 5 sites (4 IP/ISDN sites + 1 POTS audio)
- Cascade up to 14 sites (10 IP/ISDN sites + 4 POTS audio)
- Mixed network cascading
- Password protection for incoming calls
- Supports People+Content dual streams from any endpoint (not just host site)

Network features

- Automatic H.320/H.323 calling
- Downspeeding over IP and ISDN
- OneDial intelligent call management attempts call on preferred network (IP or ISDN) and automatically rolls over to secondary network if needed
- Maximum call length timer
- Auto SPID detection and configuration
- NATO standard KG-194/KIV-7 encryptor support with on-screen and address book dialing
- Software upgradeable Inverse Multiplexer (IMUX)
- Dial ISDN lines separately or simultaneously

Quality of service and experience - iPriority

- Polycom Video Error Concealment (PVEC) for concealing packet loss
- IP precedence (ToS)
- DiffServ DHCP (CoS)
- Dynamic bandwidth allocation
- Proactive network monitoring
- Packet and jitter control
- Network Address Translation (NAT) support
- Automatic NAT discovery
- Asymmetric speed control
- Fixed TCP/UDP port firewall support
- Lip synchronization
- Echo cancellation
- Echo suppression
- Auto gatekeeper discovery
- Automatic gateway dialing profiles
- Specify outbound call routing for gateway/ISDN
- Closed captioning and text chat support both in and out of calls
- Keypad audio confirmation – makes dialing easy

ViewStation EX Specifications *(continued)*

Security features

- Independently tested for endpoint security
- Enhanced integration for independently certified corporate and classified encryption devices
- Secure password authentication
- Unique factory default passwords
- Administrator password
- Dial-in meeting password
- Do not disturb meeting feature for point to point
- Do not disturb meeting feature for MultiPoint Plus calls
- Select which menu screens to password protect
- SNMP security alerts for failed and successful password authentication attempts
- Option to disable remote interfaces (FTP, SNMP, Telnet, HTTP, streaming)
- Option to disable mixed protocol MultiPoint Plus calls

Network interfaces supported

- 2 independent 10/100 Ethernet ports for IP (LAN, DSL, cable modem)
- Integrated Ethernet switch
- 1 x POTS for voice
- Optional Quad BRI (Basic Rate Interface)
- Optional 2 port serial module (V.35/RS-530/RS-449 with RS-366 dialing)
- Optional wireless LAN support via Ethernet port

Ethernet connectivity

- TCP/IP, HTTP, DNS, WINS, SNMP, DHCP, ARP, FTP, Telnet
- T.120 interface for Microsoft® NetMeeting
- Internal live video unicast or multicast stream to Apple® Quicktime, Cisco IP/TV

Directory services

- 1000+ number local directory
- 10,000+ number global directory
- Unlimited MultiPoint Plus entries
- Live address book with Polycom Global Address Book automatically and quickly updates directory with address changes or new endpoints
- Live address book with Polycom Global Address Book automatically and quickly removes endpoints from directory if they are turned off
- Polycom Global Address Book integrates with Active Directory/LDAP
- Automatic ISDN localization of calls

System management

- SNMP management
- Software upgrades via PC, IP, or in a ISDN video call
- Integrated Web server for remote management and Microsoft® PowerPoint® presentations
- Remote administrator video-only monitoring of room or calls from integrated Web server (enabled/disabled from endpoint for security)
- Built-in extensive Call Detail Records (CDR) that do not require separate external management system
- Account number validation at call initiation integrated with Polycom Global Management System for billing purposes
- Administrator configurable dialing speeds
- Complete support for The Polycom Office including
 - Polycom Global Management System™
 - Polycom Global Address Book
 - Polycom OneDial™
 - Polycom PathNavigator

Other ITU supported standards

- H.221 communications
- Bonding, mode 1
- H.281 far-end camera control
- H.225, H.245
- Annex Q standard for FEC in H.323 calls

Data port

- RS-232 control port/data communications port (1200 baud to 115k baud asynchronous)
- API for custom integration with remote devices such as Crestron™ and AMX™ control systems

Electrical

- Auto-sensing power supply
- Operating voltage/power 90-260 VAC, 47-63 Hz/40 watts

Environmental specifications

- Operating temperature: 0 to 40° C
- Operating humidity: 10 to 85% R.H. noncondensing
- Nonoperating temperature: -40 to 70° C
- Nonoperating humidity (noncondensing): 10 to 90%

Physical characteristics

- Dimensions (W/H/D): 43.8 cm x 8.8 cm x 46.7 cm
- Base unit weight: 4.7 kg / 10 lbs

Language support

Chinese, English, French, German, Italian, Japanese, Norwegian, Portuguese, Spanish

Warranty

- One year parts and labor



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Specifications subject to change without notice.



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Part No. 3726-07708-001 Rev. 02/03



Date: 09/04/2003

Location:

Customer: SC Dept of Natural
Resources

This proposal is
based upon State of
SC Contract Prices.

Contact: John Lucas
Phone Number: johnl@scdnr.state.sc.us

Videoconference System Proposal

Description	Part Number	QTY	SRP	TOTAL
<u>Remote End-points- Viewstation EX</u>				
ViewStation EX with IP (NTSC). North America	2200-20700-001	3	\$5,524	\$16,572
Quad BRI (NA) Module	2215-09011-001	3	\$1,239	\$3,717
Triple BRI NT1 network termination. For U-interface ISDN BRI. One required per three BRI. Includes Power Supply. Available in U.S. and Canada only.	2200-08406-003	3	\$422	\$1,266
Monitor & Cart Bundle - 32 in. NTSC Monitor/32 in. Multimedia Monitor and 2-Premier Carts for ViewStation systems	2230-20323-002	3	\$7,743	\$23,229
Visual Concert FX for ViewStation EX, ViewStation FX and VS4000 (North America)	2200-10500-001	3	\$1,319	\$3,957
IAP1, Installation plus 1 year PictureCare, ViewStation EX MSRP*	4862-20356-201	3	\$1,418	\$4,254
<u>Viewstation FX w/ Multipoint</u>				
ViewStation FX H.323 with internal 4-port multipoint	2200-20323-001	1	\$9,299	\$9,299
PRI Module with T-1/J-1 Interface for FX or VS4000	2215-09180-001	1	\$2,479	\$2,479
Monitor & Cart Bundle - 32 in. NTSC Monitor/32 in. Multimedia Monitor and 2-Premier Carts for ViewStation systems	2230-20323-002	3	\$7,743	\$23,229
Visual Concert FX for ViewStation EX, ViewStation FX and VS4000 (North America)	2200-10500-001	1	\$1,319	\$1,319
IAP1, Installation plus 1 year PictureCare, ViewStation FX, 4000, MSRP*	4862-20377-200	1	\$2,831	\$2,831
<u>WebOffice</u>				
WebOffice - Data Collaboration Software. 10 sites. Requires Server	VRSM0010	1	\$4,260	\$4,260

WebOffice Installation (On site Installation of software, configuration & features enablement)	SUP2010	1	\$1,796	\$1,796
WebOffice Maintenance Support 1 Year (Unlimited Telephone Technical Support During Business Hours and software upgrades) - Prices Represent % of List Price	SUP2000	1	\$600	\$600
			TOTAL	\$98,808

Mark Mills

**Senior Territory
Manager, Polycom**

Pricing:

Sales Tax and Freight are NOT INCLUDED in the above pricing.

This pricing is valid for units sold and shipped in the U.S.

Any order resulting from this quote is subject to Polycom's Terms and Conditions

Pricing is valid for 30 days.

Terms:

Net 30

Lead Time:

Standard lead time for delivery is 30 days.

Warranty:

Warranty begins on the Installation Date, or 60 days from the Delivery Date, whichever occurs first.

Engineering Comments

The Polycom systems listed above are H.320 and H.323 compatible. When implementing videoconferencing over IP networks there are many factors to consider. On an IP call you have to budget up to 20% more bandwidth for IP overhead. Therefore a 384Kbps call should be allocated up to 500Kbps of Bandwidth. QoS- When adding video traffic to an existing IP network, you must be sure the IP network can facilitate video. Must use Switch ports - not hubs. Network must be configured to give priority to video packets.